

Sub E47
108. The structure of claim 105 wherein said surfaces are provided by respective upper and lower plates of an optical disc.

109. The structure of claim 106 wherein said one opening providing access to said space is provided through either the upper or lower surface.

Sub E57
110. The structure of claim 105 including digitally encoded address information provided for optical inspection thereof from exteriorly of said structure.

111. The structure of claim 106 wherein said opening for providing access to said space is provided to receive the end of a liquid injecting device, and said one opening forms a substantially air-tight seal around said end.

112. The structure of claim 105 wherein the structure is a disc which includes upper and lower circular plates, the internal surfaces of which respectively define said upper and lower opposed surfaces.

113. The structure of claim 112 wherein a first opening is provided for access to said space from an external location and second opening is provided at a peripheral edge of the disc to vent said space.

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114. The structure of claim 112 wherein the space between the upper and lower plates is subdivided, by one or more dividing walls, to provide a plurality of spaces, and each space being provided with a fluid introduction opening and a vent opening to enable independent access to each space.

115. The structure of claim 114 wherein the dividing walls are radially extending.

116. The structure of claim 112 wherein at least one of the upper and lower plates forming the structure is transparent to enable optical inspection of the surface locations from outside the structure, and the other of the upper and lower plates includes a reflecting surface.

117. The structure of claim 105 arranged to receive one or more inserts.

118. The structure of claim 105 wherein the structure is provided as a sector of a disc.

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119. The structure of claim 118 wherein the structure is made of plastic and said one or more inserts is provided to be snap-fitted onto the disc.

120. The structure of claim 119 wherein the structure and the disc include lock and key portions to allow the structure to be snap-fitted to the disc in a correct orientation only.

121. The structure of claim 105 including one or more lenses to improve the optical inspection of said surface locations.

122. The structure of claim 121 wherein said one or more lenses are molded into said structure.

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123. A multi-reaction site assay plate structure comprising an upper surface and a lower opposed surface, said upper and lower surfaces defining a space therebetween, the lower surface having a plurality of separate reaction sites, the reaction sites being treated to increase the hydrophilicity thereof, and the lower surface being treated to increase the hydrophobicity of the surface other than at said reaction sites, the spacing between said upper and lower surfaces being sufficiently small to facilitate the flow of fluid in said space by capillary action of a fluid introduced into said space through said opening to cover all of the sites, the sites being such that when excess fluid is subsequently withdrawn through the one or another opening some of said liquid is left at said sites.

124. The assay plate structure of claim 123 including at least one opening providing access to said space from an external location.

125. The assay plate structure of claim 124 wherein said opening providing access to said space is provided to receive the end of a liquid injecting device, and said opening forms a substantially air-tight seal around said end.

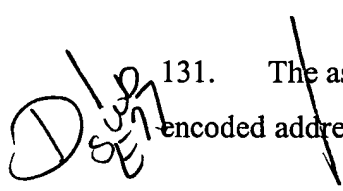
126. The assay plate structure of claim 123 wherein the structure is an optically transparent disc which includes upper and lower circular plates, the internal surfaces of which respectively define said upper and lower opposed surfaces.

127. The assay plate structure of claim 126 wherein a second opening is provided at a peripheral edge of the disc.

128. The assay plate structure of claim 127 wherein the space between the upper and lower plates is subdivided, by one or more dividing walls, to provide a plurality of spaces, each space being provided with a fluid introduction opening and a vent opening to enable each space to be independently accessed.

129. The assay plate structure of claim 126 wherein at least one of the upper and lower plates forming the structure are transparent to enable optical inspection of the sites from outside the structure.

130. The assay plate structure of claim 129 wherein the other of the upper and lower plates includes a reflecting surface.

 131. The assay plate structure of claim 123 wherein the plate structure includes digitally encoded address information.

132. An optically transparent disc for use with an optical reader, said disc comprising:
an internal surface having a reaction site to be optically inspected by said reader; and
a lens in said disc to improve optical inspection of said sites.

133. The disc of claim 132 wherein said lens is molded into said disc as a part of said disc.

134. The disc of claim 132 wherein said disc includes digitally encoded address information provided for optical inspection by said reader.

135. The disc of anyone of claim 132 through 134 wherein said internal surface is provided within a chamber within said disc, said chamber having an upper surface spaced above said internal surface so as to facilitate fluid flow within said chamber by capillary action of a fluid introduced into said chamber.

136. An optically transparent disc comprising digitally encoded address information;

one or more fluid flow chambers, each of said one or more chambers defining a space therein to facilitate fluid flow throughout said space by capillary action of a fluid introduced into said space;

a first opening providing access to said space from a location external of said disc; and

a second opening for venting displacement of fluids from said space.

137. The disc of claim 136 wherein said first opening providing access to said space is provided to receive the end of a liquid injecting device, and said first opening forms a substantially air-tight seal around said end.

138. The disc of claim 136 wherein a surface within said chamber is treated to increase the hydrophobicity of such surface.

139. The disc of claim 136 including upper and lower circular plates, the internal surfaces of which respectively define said space.

140. The disc of claim 136 wherein said second opening is provided at a peripheral edge of the disc.

141. The optical disc structure of claim 139 wherein the space between the upper and lower plates is subdivided, by one or more dividing walls, to provide a plurality of spaces, and each of said spaces being provided with a fluid introduction opening and a vent opening to enable each space to be independently accessed and vented.

142. The optical disc structure of claim 141 wherein the dividing walls are radially extending.

143. The optical disc structure of claim 139 wherein at least one of the upper and lower plates forming the structure are transparent to enable optical inspection of the one or more chambers from outside the structure.

144. The optical disc structure of claim 143 wherein the other of the upper and lower plates includes a reflecting surface.

145. The optical disc structure of claim 136 wherein the disc is arranged to receive one or more inserts, each of which includes one of said fluid flow chambers.

146. An assay structure for use in conducting optical assays of a fluid analyte, the structure comprising:

a disc for rotation about a central axis, the disc including optically readable digitally encoded address information provided therein for optical inspection thereof from externally of said disc and said disc have one or more disc insert receiving sectors;

one or more disc inserts to be received by a respective disc sectors and to be retained therein,

the structure further including one or more openings within the disc to provide , at least one opening relative a disc sector for fluid communication with a disc insert received in said sector.

147. The assay structure of claim 146 wherein a vent opening is provided in said disc for a disc sector.

148. The assay structure of claim 146 wherein the one or more disc inserts are snap-fitted to the disc.

149. The assay structure of claim 146 wherein the disc inserts and the disc include lock and key portions to allow the inserts to be snap-fitted to the disc in a correct orientation only.

150. The assay structure of claim 146 wherein the disc and inserts are made of optically transmissive plastic.

151. An optical disc for use in conducting optical assays of a fluid analyte, the disc comprising:

optically readable digitally encoded address information; and

said disc having one or more disc sectors, each of said sectors being provided to receive a disc insert.

152. The optical disc of claim 151 wherein a disc sector is provided with upper and lower plates spaced apart a sufficiently shallow distance to facilitate the flow of a fluid between said plates by capillary action.

153. The optical disc of claim 152 including one or more disc inserts received in a respective disc sector.

154. The optical disc of claim 153 wherein said disc sectors and disc inserts are provided to allow each of said inserts to be snap-fitted to said respective sector.

155. The optical disc of any one of claims 151 through 154 wherein a disc insert including a fluid analyte is present in said disc.

REMARKS

Please enter the within amendment adding claims preliminarily to the continued examination of this continuing patent application.

Applicant respectfully requests a one month extension of time to respond to the Office Action of July 26, 2001. A check in the amount of \$550.00 is enclosed for the extension fee.